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PTO/SB/17 (08-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 330.00

Complete if Known	
Application Number	09/484,749
Filing Date	01/18/2000
First Named Inventor	Qinyun Peng et al
Examiner Name	Arti R. Singh
Art Unit	1771
Attorney Docket No.	FDN-2604

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number: 50-1855

Deposit Account Name: Building Materials Investment Corporation

The Director is authorized to: *(check all that apply)*

☒ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	750	2001	375	Utility filing fee	
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below		Fee Paid
Total Claims		-20** =		X	=
Independent Claims		- 3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	330
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330.00

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	DR. WALTER KATZ	*Registration No. (Attorney/Agent)*	19,706	*Telephone*	973-628-3528
Signature				*Date*	10/30/2003

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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FDN-2604

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicants	:	Qinyun Peng et al	)	Group Art Unit 1771
Serial No.	:	09/484,749	)	Examiner : Arti R. Singh
Filed	:	01/18/2000	)	

For : ASPHALT ROOFING COMPOSITE INCLUDING
ADHESION MODIFIER-TREATED GLASS FIBER MAT

1361 Alps Road
Wayne, NJ 07470

OCTOBER 30, 2003

MAIL STOP APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

BRIEF ON APPEAL

This Appeal Brief is submitted in response to the Final Rejection of the Examiner mailed 09/10/2003, and to the filing of our Notice of Appeal mailed on 09/25/2003.

The Commissioner is hereby authorized to charge any fees or to credit any overpayment to Deposit Account No. 50-1855.

1. REAL PARTY IN INTEREST

BUILDING MATERIALS INVESTMENT CORPORATION, of 300 Delaware Avenue, Suite 303, Wilmington, Delaware 19801, is the owner of the entire right, title, and interest in the appealed application.

2. RELATED APPEALS AND INTERFERENCES

There are no known appeals or interferences known to appellants or to the undersigned attorney for appellants which will directly affect or be directly affected by or have a bearing on the Board's decision in the instant appeal.

3. STATUS OF ALL CLAIMS

Claims 1, 2 and 4-8 are pending in the application and are appealed.

4. GROUPING OF CLAIMS

The rejected claims do not stand or full together. Each claim is considered a separate invention and should be considered individually.

5. REFERENCES CITED

U.S. PATENT	DATE	INVENTOR	CLASS/SUBCLASS
5,518,586	05-1996	Mirous	162/156
3,865,682	02-1975	Marzocchi et al	161/170

6. THE INVENTION

The invention provides (1) 0.001% to 20% by weight of an adhesion modifier which is preferably (claim 4) a polysiloxane (2) applied to the surface of a glass mat and is non-reactive with its surface; and (3) whose asphalt-coated hand sheets and asphalt

roofing shingles containing such treated glass mats meet or exceeds Tear Test D-1922 (ASTM D-3462, July 10, 1997 Ed.). In fact, such asphalt shingles have a tear strength of about 2207 in gf which is substantially in excess of the 1700 required by the ASTM standard for commercial asphalt-roofing shingles at conventional weights and without requiring modification of urea-formaldehyde binder used therein.

While the reason for the unexpected effect is not completely understood at present, it is observed (Figs. 1 and 2) that such adhesion modifier-treated, asphalt-impregnated glass mats feature a tear region in which the fibers are pulled out, not torn or broken, which enhances its tear strength.

7. THE REJECTION

Claims 1, 2 and 4-8 were rejected under 35 U.S.C. 103(a) on Mirous further in view of Marzocchi. The Examiner has indicated that Mirous discloses high tear strength glass mats having a urea-formaldehyde resin binder applied to a fibrous glass mat and useful in making roofing shingles.

8. THE ARGUMENT

Considering the references, it is seen that Mirous is directed only to a process of making the glass fiber mats themselves, which require a binder to hold the mat together. Usually the binder is a urea-formaldehyde resin. Mirous merely discovered that by adding water-insoluble anionic phosphate esters to the urea-formaldehyde resin, high tear strength mats per se could be prepared. Clearly, Mirous does not disclose, teach or suggest the polysiloxane adhesion modifier of the present invention, which is applied non-reactively to the surface of the glass mat and which promotes tear strength

that by adding water-insoluble anionic phosphate esters to the urea-formaldehyde resin, high tear strength mats per se could be prepared. Clearly, Mirous does not disclose, teach or suggest the adhesion modifier, e.g. a polysiloxane adhesion modifier of the present invention, which is applied non-reactively to the surface of the glass mat and which promotes tear strength in an asphalt-impregnated glass mat in an unusual way so that the ASTM standard is met or exceeded. Stated another way, the present invention begins where the Mirous process of binding the glass fibers left off. Specifically, in this invention, the glass fiber mat is thereafter coated with the polysiloxane adhesion modifier, suitably from a solution or emulsion which is applied, preferably by spraying or dipping, onto the wet or dry mat before curing.

Marzocchi is seen to only describe a composition for use in treatment of glass fibers to provide a more secure bonding relationship between glass fibers and elastomeric materials in the manufacture of glass fiber-reinforced elastomeric products. This composition is a resorcinol-aldehyde resin prepared by reacting resorcinol and an aldehyde in the presence of an amino silane, silanol or polysiloxane. Accordingly, the disclosure relates to the preparation of a new resin which has an organo-silicon compound chemically bonded to the resorcinol-aldehyde matrix. Of course, such organo-silicon compounds must be reactive enough to enter chemically into such matrix. Preferred are silanes having a readily hydrolysable group. These actives are not suitable as non-reactive adhesion modifiers in this invention.

In contrast, the polysiloxane adhesion modifiers in applicants' invention are not incorporated in the resin nor are they reactive, or intended to be reactive, with any elastomeric material. Quite the contrary, the adhesion modifiers of this invention are applied to the surface of the glass mats and are non-reactive with the glass mats and the asphalt-impregnated into the mats. They demote physical adhesion between mat and asphalt so that the fibers are pulled out, not torn.

9. SUMMARY

In view of the foregoing, the claims in the application are believed to be allowable over the cited art alone or in combination. Reconsideration and reversal of the Examiner's rejection is respectfully solicited.

Respectfully submitted,

Dr. Walter Katz
Attorney for Appellants
Registration No. 19,706
Tel. No. (973) 628-3528
Fax. No. (973) 628-3620

CLAIMS ON APPEAL

Claim 1. A glass fiber mat for use in making a roofing composite of asphalt-coated hand sheets and asphalt shingles, said mat comprising, by weight, about 68% to about 90% of fibers; about 10% to about 32% by weight of an organic resin binder; and having applied to the surface of said glass mat about 0.001% to about 20% by weight of an adhesion modifier which is non-reactive with said surface of the glass mat but which induces fiber pull-out during tear of the composite and thereby provides improved composite tear strength wherein said asphalt-coated hand sheets and asphalt shingles thereof meet or exceeds Tear Test D-1922 (ASTM D-3462, July 10, 1997 Ed), and wherein said adhesion modifier is a polysiloxane.

Claim 2. A glass fiber mat according to claim 1 wherein the amount of adhesion modifier is about 0.01% to about 10%.

Claim 4. A glass fiber mat according to claim 1 wherein said polysiloxane is a polyalkyl siloxane, a polyaryl siloxane, a polyalkylaryl siloxane or a polyether siloxane, or derivative thereof.

Claim 5. A glass fiber mat according to claim 4 wherein said polysiloxane is a polydimethyl siloxane or derivative thereof.

Claim 6. A glass fiber mat according to claim 4 wherein said polysiloxane has a molecular weight > 600.

Claim 7. A glass fiber mat according to claim 1 wherein said organic resin binder includes a urea-formaldehyde resin.

Claim 8. A glass fiber mat of claim 1 wherein said glass fibers have a length of about 3 mm to about 130 mm, and a diameter of about 5 micrometers to about 25 micrometers.

THE APPENDIX